

WHAT IS CLAIMED IS:

~~1.~~ A process of treating a fiber stock suspension for at least one of paper and cardboard production, said process comprising the steps of:

providing the fiber stock suspension, with a moistened fiber material having fiber surfaces;

5 placing the fiber suspension in a fluffer;

adding at least one additive to the fiber suspension; and

separating the fiber material within said fluffer so as to increase a specific surface thereof, thereby optimizing accessibility of educts to the fiber surfaces.

2. The process of claim 1, wherein one said additive is a filler incorporated onto the fiber surfaces during said operating step.

3. The process of claim 1, wherein said fluffer separates the fiber material into individual fibers.

4. The process of claim 1, wherein said fluffer is used for pre-treating the fiber stock suspension.

5. The process of claim 1, wherein said fluffer is comprised of at least one of knives and toothed fluffer disks.

6. The process of claim 1, wherein the fluffer has a working area which is pressurized.

7. The process of claim 6, wherein a pressure in said working area is within an approximate range of 0.1 to 20 bar.

8. The process of claim 1, wherein said process has a volume and mass flow rate associated therewith, said volume and mass flow rate being adjustable within an approximate range of 5 tons/day to 1500 tons/day.

9. The process of claim 1, wherein said fiber stock suspension within said fluffer has a stock temperature, the stock temperature being capable of being regulated within an approximate range of 5° C to 250° C.

10. The process of claim 1, wherein the at least one additive is added to the fiber stock suspension at an approximate ratio of 15% to 40%.

11. The process of claim 10, wherein the at least one additive is added to the fiber stock suspension at an approximate ratio of 20% to 25%.

12. The process of claim 1, wherein the fiber stock suspension has a stock pH associated therewith, said stock pH being set in an approximate range of 10 to 13.

13. ~~The process of claim 1, wherein one said additive is CaCO₃, said CaCO₃ being added to the fiber stock suspension at least one of prior to, in and after said fluffer.~~

14. The process of claim 13, wherein said CaCO₃ has temperature selected to be in an approximate range of -10° C to 250° C.

15. The process of claim 1, wherein one said additive is Ca(OH)₂, said Ca(OH)₂ being added to the fiber stock suspension at least one of prior to, in and after said fluffer.

16. The process of claim 15, wherein said Ca(OH)₂ is added at an approximate ratio of 1% to 60%.

17. The process of claim 15, wherein said Ca(OH)₂ has a particle surface of greater than 30,000 cm²/g.

18. The process of claim 5, wherein said fluffer includes at least one pair of adjoining fluffer disks, each pair of adjoining fluffer disks defining a nip, each nip having a nip width, said nip width being adjustable within a range of about 0.1 mm to about 100 mm.

19. The process of claim 1, wherein said process has an energy requirement associated therewith, said energy requirement being selected from an approximate range of 5 kWh/t to 200kWh/t.

20. A device for treating a fiber stock suspension with at least one additive, the fiber stock suspension being used for production of at least one of paper and cardboard, the fiber stock suspension including a suspension medium and a fiber material, the fiber material having fiber surfaces moistened by the suspension medium, said device comprising:

5 a fluffer having an inlet for receiving at least one of the fiber stock suspension and the at least one additive, said fluffer being configured for separating the fiber material and enlarging a specific surface of the fiber material to thereby optimize accessibility for educts to the fiber surfaces.

21. The device of claim 20, wherein at least one said additive is a filler, the device being configured for incorporating said filler onto the fiber surfaces.

22. The device of claim 20, wherein said fluffer is configured for separating the fiber material into individual fibers.

23. The device of claim 20, further including at least one reactor, said fluffer being located one of prior to, in and after said at least one reactor.

24. The device of claim 20, wherein said fluffer is comprised of at least one of toothed fluffer disks and knives.

25. The device of claim 20, wherein the fluffer has a working area, said fluffer being configured for variably pressurizing said working area.

26. The device of claim 25, wherein a pressure in said working area is adjustable within an approximate range of 0.1 to 20 bar.

27. The device of claim 20, further comprising outlet for the fiber stock suspension, said outlet coupled to said fluffer, said outlet having a variably adjustable through-put associated therewith.

28. The device of claim 20, wherein said fluffer has a volume and mass flow of the fiber stock suspension associated therewith, said volume and mass flow being adjustable.

29. The device of claim 28, wherein said volume and mass flow rate is adjustable within an approximate range of 5 tons/day to 1500 tons/day.

30. The device of claim 20, wherein said fluffer is configured for adjustably controlling a stock temperature of the fiber stock suspension.

31. The device of claim 30, wherein the stock temperature is adjustable within an approximate range of 5° C to 250° C.

32. The device of claim 20, further comprising at least one additive infeed, each additive infeed being coupled with one of said inlet and said fluffer.